

**Notice of Allowability**

Application No.

10/743,541

Examiner

Tom V. Sheng

Applicant(s)

OKUBO ET AL.

Art Unit

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 1/4/2007.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney Thomas G. Bilodeau on 2/27/2007.

The application has been amended as follows:

In claim 1, at last two lines, replace "the information is displayed on the road surface within a main light distribution pattern provided by the light irradiation unit."

with --the information is displayed in the OFF state within a main light distribution pattern displayed in the ON state on the road surface provided by the light irradiation unit; wherein the main light distribution pattern encloses the displayed information.--.

In claim 15, at the last line, before ".", append --; wherein the polygon is a non-lighting portion enclosed within the first rectangle of which the enclosing part is a lighting portion, and area between the first rectangle and the second rectangle is a lighting portion--.

Claims 1-20 are allowed.

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2. The following is an examiner's statement of reasons for allowance:

The invention is directed to a digital display apparatus for a vehicle includes an optical engine that includes a light source, a reflection type digital light deflector that has a plurality of micro mirror elements, a light irradiation unit that irradiates reflected light from the reflection type digital light deflector on a road surface and the like, and an information display unit. The reflection type digital light deflector digitally switches over a direction of reflection of a light from the optical engine between an ON and an OFF state. The information display unit displays information using a contrast between the ON reflected light and an OFF reflected light from the reflection type digital light deflector on the road surface and the like through the light irradiation unit.

Independent claim 1 identifies, inter alia, the uniquely distinct features "an information display unit that controls the reflection type digital light deflector, and that displays information using a contrast between the ON state light and an OFF state light reflected from the reflection type digital light deflector on the road surface via the light irradiation unit, the information is displayed in the OFF state within a main light distribution pattern displayed in the ON state on the road surface provided by the light irradiation unit; wherein the main light distribution pattern encloses the displayed information."

Independent claim 8 identifies, inter alia, the uniquely distinct features "one of the two reflection digital light deflectors forms the information with the OFF state light under control of the information display unit, other of the two reflection digital light deflectors forms a non-lighting portion with the OFF state light under control of the information

display unit, and the information display unit displays the information and the non-lighting portion on the road surface via the light irradiation units so that the non-lighting portion surrounds the information.”

Independent claim 15 identifies, inter alia, the uniquely distinct features “displaying information that is formed by the one of the reflection type digital light deflectors based on the first control signal and a non-lighting portion formed by the other of the reflection type digital light deflectors based on the second control signal on a road surface so that the non-lighting portion surrounds the information; wherein the polygon is a non-lighting portion enclosed within the first rectangle of which the enclosing part is a lighting portion, and area between the first rectangle and the second rectangle is a lighting portion.”

Hege (US 5,938,319) teaches a vehicle headlight comprising a light source, a light guiding device having an array of reflecting elements. Each reflecting element is tiltable between two definite positions. A lens is used to form a light beam illuminating the road in front of the vehicle based on the reflected light. A controller controls the reflecting elements in order to modify the light beam characteristics based on different parameters such as weather conditions. Hege’s headlight does not display any information surrounded by a main light as claimed above.

Kudo (JP 60022541 A) teaches a headlight with a main lens and lamp. At a lower wall part of the lens, a character plate is installed onto an opening. The light of the lamp is partially projected on the road immediately before front wheels through a secondary lens, character plate and other openings. In particular, the character image

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controlled by the character plate can be vehicle speed, fuel quantity, time or temperature. Kudo's information is separately displayed and not surrounded by the main light. Moreover, Kudo's character plate modulates light passing through it and does not control any digital light deflector, let alone two in coordination. Hege and Kudo combined would still not teach or suggest above claimed limitations.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom V. Sheng whose telephone number is (571) 272-7684. The examiner can normally be reached on 9:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tom Sheng

AMR A. AWAD  
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Amr A. Awad", with a long, sweeping horizontal stroke extending to the right.